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United States Department of Agriculture,

OFFICE OF THE SECRETARY—CIRCULAR No. 31.

THE ADULTERATION AND MISBRANDING OF THE SEEDS OF ALFALFA, RED CLOVER, ORCHARD GRASS, AND KENTUCKY BLUEGRASS.

During the calendar year 1909 seeds of red clover, alfalfa, orchard grass, and Kentucky bluegrass were obtained in the open market in accordance with the following paragraph in the act of Congress making appropriations for the Department of Agriculture:

The Secretary of Agriculture is hereby directed to obtain in the open market samples of seeds of grass, clover, or alfalfa, test the same, and if any such seeds are found to be adulterated or misbranded, or any seeds of Canada bluegrass (*Poa compressa*) are obtained under any other name than Canada bluegrass or *Poa compressa*, to publish the results of the tests, together with the names of the persons by whom the seeds were offered for sale.

In carrying out the provisions of this act, 1,814 samples of seed were secured and analyzed under the direction of Mr. Edgar Brown, Botanist in Charge of the Seed Laboratory, and publication is here made of the analyses of the 69 samples found to be adulterated or misbranded, together with the names of the seedsmen by whom they were offered for sale.

ALFALFA.

Of the 359 samples of alfalfa seed secured, 107 contained dodder. No lots were found to be either adulterated or misbranded.

RED CLOVER.

Of the 630 samples of red clover seed obtained, 54, or less than 10 per cent, were found to contain dodder, as contrasted with more than 50 per cent last year. The fact that a comparatively small number of samples of red clover were found to contain dodder this year is no doubt chiefly due to the low price of clover seed in the spring of 1909, little low-grade seed being imported from European sources. No samples of red clover seed were found to be adulterated or misbranded.

ORCHARD GRASS.

Of the 379 samples obtained as orchard grass seed, 55 were found to be adulterated with seed of meadow fescue or rye-grass, or both. This is practically the same number of adulterated samples of orchard grass seed that was found in the calendar year 1908, showing that there has been little change in the amount of adulterated orchard grass seed on the market.

TABLE I.—Results of tests of samples of seed obtained in the open market as orchard grass seed and found to be adulterated.

Seed offered for sale or sold as orchard grass by—		Sample obtained by—	Seeds and inert matter found upon analysis of sample.			
Name of dealer.	Address.		Orchard grass.	Meadow fescue and ryegrass.	Other foreign seeds.	Inert matter.
Adams, T. Lee.....	417 Walnut st., Kansas City, Mo.	Mail.....	<i>Per ct.</i> 64.58	<i>Per ct.</i> 20.76	<i>Per ct.</i> 2.15	<i>Per ct.</i> 12.51
Do.....	do.....	Purchase..	61.68	19.33	1.49	17.5
Adams Hardware Co.	Lowell, Mass.	do.....	34.09	8.56	1.87	55.48
Andrews, Jim, Jr.....	13 East Side Public Square, Columbia, Tenn.	Mail.....	55.31	12.64	1.98	30.07
Do.....	do.....	Purchase..	52.38	12.22	1.88	33.52
Callender & Co., S. E.	Columbia, Tenn.	do.....	64.34	12.00	1.19	22.47
Cannon Floral and Seed Co.	Lafayette, Colo.	Mail.....		98.16	.75	1.09
Do.....	do.....	Purchase..		94.50	3.49	2.01
Charleston Nursery and Seed Co.	29 Alderson street, corner Virginia street, Charleston, W. Va.	Mail.....	33.45	44.30	5.10	17.15
Do.....	do.....	Purchase..	35.01	44.64	4.46	15.89
Craig & Co., Edmond..	409 East Markham street, Little Rock, Ark.	Mail.....	58.93	25.57	1.00	14.50
Do.....	do.....	Purchase..	52.21	27.79	1.49	18.51
Cummings & Pease....	718 South Sixth street, Beatrice, Nebr.	Mail.....	60.30	14.76	<i>a</i> 12.56	12.38
Do.....	do.....	Purchase..	58.68	13.68	<i>b</i> 11.68	15.96
Grey & Co., Thomas J..	32 South Market street, Boston, Mass.	do.....	67.98	11.10	1.95	18.97
Grossmann & Son, W..	11 Bollingbrook street, Petersburg, Va.	Mail.....	61.41	21.51	1.00	16.08
Do.....	do.....	Purchase..	55.81	28.22	2.22	13.75
Harnden Seed Co.....	505 Walnut st., Kansas City, Mo.	Mail.....	63.37	15.08	.39	21.16
Do.....	do.....	Purchase..	58.14	23.28	1.09	17.49
Hehner Milling Co.....	14 Fourth street, Fond du Lac, Wis.	Mail.....	32.78	37.53	.57	29.12
Do.....	do.....	Purchase..	32.14	40.38	<i>c</i> 4.22	23.26
Jenness, C. L.....	Dover, N. H.	do.....	21.29	50.05	5.89	22.77
Koss, Theo.....	396 Fifth street, Milwaukee, Wis.	Mail.....	35.34	42.75	1.31	20.60
Do.....	do.....	Purchase..	39.22	38.15	1.37	21.26
Longley, Frank L.....	Radford, Va.	Mail.....	49.59	30.48	1.55	18.38
Do.....	do.....	Purchase..	52.06	30.96	2.86	14.12
McKay, Reece & Co....	124 Second avenue north, Nashville, Tenn.	Mail.....	55.20	25.15	1.13	18.52
Do.....	do.....	do.....	54.27	15.50	2.23	28.00
Do.....	do.....	do.....	63.50	18.64	.80	17.06
Do.....	do.....	Purchase..	47.44	14.06	2.58	35.92
Model Milling Co.....	Celina, Ohio.	Mail.....	53.38	13.16	2.25	31.21
Do.....	do.....	Purchase..	51.49	15.78	1.27	31.46
Nashville Seed Co.....	215 Second avenue north, Nashville, Tenn.	Mail.....	52.56	30.33	3.67	13.44
Do.....	do.....	Purchase..	66.24	7.34	<i>d</i> 7.08	19.34
Phillips-Thompson Co..	Wilmington, Del.	Mail.....	49.53	21.94	<i>e</i> 7.27	21.26
Do.....	do.....	Purchase..	57.45	29.04	3.77	9.74
Pioneer Seed Co.....	1514 Fifteenth st., Denver, Colo.	Mail.....	46.69	10.88	7.94	34.49
Do.....	do.....	Purchase..	54.50	8.90	7.72	28.88
Robinson & Hutton....	Lexington, Va.	Mail.....	72.81	10.33	.83	16.03
Do.....	do.....	Purchase..	68.85	10.38	1.08	19.69
Sanders & Co., B. B....	343 Broadway, Albany, N. Y.	Mail.....	23.23	60.09	<i>f</i> 2.90	13.78
Do.....	do.....	Purchase..	25.10	63.78	3.18	7.94
Seattle Seed Co.....	319 First avenue south, Seattle, Wash.	Mail.....	39.51	46.82	1.28	12.39
Do.....	do.....	Purchase..	30.22	59.28	1.61	8.89
Tacoma Implement and Seed Co.	1350 Commerce street, Tacoma, Wash.	Mail.....	37.76	50.10	1.22	10.92
Do.....	do.....	Purchase..	44.18	45.86	1.68	8.28
Tillinghast, A. G.....	La Conner, Wash.	Mail.....	35.48	46.18	2.29	16.05
Do.....	do.....	Purchase..	32.74	52.26	.79	14.21
Toledo Field Seed Co..	Hamilton street, Toledo, Ohio.	Mail.....	73.38	5.80	<i>g</i> 3.06	17.76
Do.....	do.....	Purchase..	67.80	13.58	3.32	15.30
Varick Co., John B....	Manchester, N. H.	do.....	65.64	18.64	3.23	12.49
Wilder Co., J.....	139 West Sixth street, Cincinnati, Ohio.	Mail.....	36.55	40.64	5.08	17.73
Do.....	do.....	Purchase..	34.99	40.28	3.62	21.11
Yuess Gardens Co.....	Newburgh, N. Y.	Mail.....	1.73	34.78	9.09	54.40
Do.....	do.....	Purchase..	3.62	32.26	10.37	53.75

a Chess and smooth chess, 10.69 per cent.*b* Chess and smooth chess, 8.44 per cent.*c* Canada bluegrass, 2.7 per cent.*d* Timothy, 3.38 per cent.*e* Timothy, 3.95 per cent.*f* Chess and smooth chess, 1.20 per cent.*g* Chess and smooth chess, 2.41 per cent.

KENTUCKY BLUEGRASS.

Of the 446 samples of seed obtained as Kentucky bluegrass, 14 were found to be wholly or in part seed of Canada bluegrass. This shows a decided decrease in the amount of adulterated seed of Kentucky bluegrass on the market as compared with last year, when 39 samples were found. This decrease is no doubt partly due to the fact that there was less difference in price between Canada bluegrass and Kentucky bluegrass seed this year than in former years. Germination tests of this seed showed a variation from zero to 90 per cent, with an average of 62 per cent.

TABLE II.—*Results of tests of samples of seed obtained in the open market as Kentucky bluegrass seed and found to be adulterated.*

Seed offered for sale or sold as Kentucky bluegrass by—		Sample obtained by—	Seeds and inert matter found upon analysis of sample.			
Name of dealer.	Address.		Kentucky bluegrass.	Canada bluegrass.	Other foreign seeds.	Inert matter.
			<i>Per ct.</i>	<i>Per ct.</i>	<i>Per ct.</i>	<i>Per ct.</i>
Adams Co., B. F.....	116 South Washington street, Peoria, Ill.	Mail.....	0.78	77.63	2.31	19.28
Do.....	do.....	Purchase..	.08	78.28	1.24	20.40
Barrett Co., W. E.....	Providence, R. I.....	do.....	.45	88.95	2.32	8.28
Buck & Co., E. A.....	Palmer, Mass.....	do.....	.39	77.89	2.84	18.88
Providence Seed Co.....	6 Exchange Place, Providence, R. I.....	do.....	30.47	41.24	2.19	26.10
Robinson Grain Co., H. A.....	218-220 West Huerfano street, Colorado Springs, Colo.	Mail.....	.09	84.95	a 4.42	10.54
Do.....	do.....	Purchase..	.41	82.23	b 4.27	13.09
Templin Seed Co., L.....	Calla, Ohio.....	do.....	51.80	11.76	c 12.46	23.98
Tompkins, W. C.....	15 West Bank street, Albion, N. Y.	Mail.....	1.46	61.96	d 18.91	17.67
Do.....	do.....	Purchase..	2.00	58.53	e 23.73	15.74
Vietor Grain Co.....	359 Common street, Lawrence, Mass.	do.....	36.59	40.93	1.74	20.74
Wilson, A. P.....	Newburyport, Mass.....	do.....	12.04	65.17	f 5.86	16.93
Wisconsin Seed Co.....	102 West Water street, Milwaukee, Wis.	Mail.....	.87	71.54	g 6.11	21.48
Do.....	do.....	Purchase..	19.80	61.01	h 2.26	16.93

^a Timothy, 4.23 per cent.

^b Timothy, 3.16 per cent.

^c Timothy, 11.89 per cent.

^d Timothy, 15.57 per cent.

^e Timothy, 18.92 per cent.

^f Timothy, 4.83 per cent.

^g Timothy, 5.74 per cent.

^h Timothy, 1.77 per cent.

On the whole, the results of this work for the year are very encouraging. No adulterant was found in the seeds of the two staple forage crops red clover and alfalfa; there was a decided reduction in the number of samples of adulterated Kentucky bluegrass seed, and no increase occurred in the number of samples of adulterated orchard grass seed. The percentage of samples of red clover seed which contained dodder was only one-fifth of what it was a year ago. Of the 40 firms whose names are published in this circular as selling adulterated seed, only 19 have been previously published for the same reason, indicating that the result of publication has been to deter dealers from continuing the sale of adulterated seeds. Of the 19 names in this circular which have previously appeared, only 8 have appeared more than once.

As has been formerly stated in these publications, this Department will examine and report promptly as to the presence of adulterants and dodder in any samples of seed submitted for that purpose. According to the location of the sender these may be submitted to the Seed Laboratory, at Washington, D. C., or to any of the following laboratories maintained through the cooperation of this Department: Branch Seed Testing Laboratory, Agricultural Experiment Station, Columbia, Mo.; Branch Seed Testing Laboratory, Agricultural Experiment Station, Lincoln, Nebr.; Branch Seed Testing Laboratory, Oregon Agricultural College, Corvallis, Oreg.

Respectfully submitted:

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Approved:

JAMES WILSON,
Secretary of Agriculture.

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